



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/666,090

09/19/2003

Robert C. Lam

02074/02091

8977

43215 7590 01/29/2007
BORGWARNER INC.
PATENT DEPARTMENT
3850 HAMLIN ROAD
AUBURN HILLS, MI 48326-2872

EXAMINER

CHOI, PETER Y

ART UNIT

PAPER NUMBER

1771

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

01/29/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/666,090

Applicant(s)

LAM ET AL.

Examiner

Peter Y. Choi

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 7-17, 28 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-17, 28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

NON-FINAL ACTION

1. Applicants' remarks of November 2, 2006, have been carefully considered. The previous Examiner noted in the Non-Final Rejection of March 8, 2006, that claims 6, 9, 11, 13, 16, and 28, as constituted at that time, would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. However, after an updated search by the current Examiner, new rejections to the claims presently constituted are set forth below.

Claim Objections

2. Claims 1-3, 7, 8, 10-12, 14, 15, 17 and 29 are objected to because of the following informalities: regarding claim 1, in the third line, "firbrous base material" is misspelled, in the seventh line, the underlined ";" following "porous primary layer" should be removed, and in the eleventh line, there is an "s" missing from "comprise." Regarding claim 9, in the eleventh line, there is an "s" missing from "comprise." Regarding claim 16, in the thirteenth line, "be weight" is misspelled and in the fifteenth line, there is an "e" missing from "silicon." Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-3, 7-17, 28, and 29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not

Art Unit: 1771

described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims recite “geometrically symmetrically shaped friction modifying particles,” “symmetrically shaped silica particles,” “symmetrically shaped particles,” “symmetrically shaped diatomaceous earth particles,” “symmetrically shaped diatomaceous earth,” and “substantially flat disc shape,” disclosing particles by their properties and neither disclosing particles suitable for the purpose nor a process by which one of ordinary skill in the art would be able coat the porous primary layer with particles resulting in the claimed geometrically symmetrically shaped friction modifying particles. One of ordinary skill in the art would not be able to make and/or use the invention without undue experimentation since the specification does not teach or suggest materials or alternative materials which would result in the claimed invention. Therefore, the claims are rejected for failing to comply with the enablement requirement of 35 U.S.C. 112, first paragraph.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 11 recites the limitation “about 65% to about 80% carbon particles” without defining a reference as to how the percentage of carbon particles is calculated, whether it is by weight or by comparison to the particles comprising the secondary layer.

Claim Rejections - 35 USC § 102/103

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-3, 7-17, 28, and 29 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 1203897 to Lam.

Regarding claims 1-3, 7-17, 28, and 29, Lam discloses a friction material comprising a base material impregnated with at least one curable resin, the base material comprising a porous primary layer comprising a fibrous base material, and a secondary layer comprising geometrically symmetrically shaped friction modifying particles at least partially covering an outer surface of the fibrous base material, the material of the primary layer holding the geometrically symmetrically shaped friction modifying particles on the surface of the porous primary layer, wherein the secondary layer comprises about 0.2% to about 50%, by weight, of symmetrically shaped particles, based on the total weight of the friction modifying particles (see entire document including paragraphs 0001, 0024, 0025, 0059, 0060).

Art Unit: 1771

Regarding claims 1-3, 7-17, 28, and 29, although the reference does not appear to explicitly teach that the shaped friction modifying particles are geometrically symmetrically shaped, CELITE, disclosed in the Lam reference, typically has a symmetrical shape.

Regarding claim 1, the secondary layer comprises a mixture of carbon particles and symmetrically shaped silica particles, the carbon and silica friction modifying particles being present at about 0.2 to about 80%, by weight, based on the weight of the primary layer material (paragraph 0060).

Regarding claims 2 and 3, the primary layer material comprises fabric materials, woven and/or nonwoven materials (paragraph 0071).

Regarding claim 3, while Lam does not appear to teach that the primary layer material has a surface smoothness in the range of from about 0.02 mm Ra to about 0.2 mm Ra which smooth surface provides the friction material with consistent anti-shudder and coefficient of friction characteristics, the claimed properties are deemed to be inherent to the structure in the prior art since the Lam reference teaches an invention with a similar structural and chemical composition as the claimed invention and teaches the anti-shudder and coefficient of friction characteristics (paragraphs 0002, 0049). Properties are the same when the structure and composition are the same. The burden is on the Applicants to prove otherwise. *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980).

Regarding claims 7 and 8, the friction modifying particles cover about 3% to about 90% of the surface area of the primary layer material or substantially cover the outer surface of the primary layer material (paragraph 0059).

Art Unit: 1771

Regarding claim 9, the secondary layer comprises a mixture of symmetrically shaped diatomaceous earth particles and fully carbonized carbon particles or partially carbonized carbon particles, and mixtures thereof (paragraph 0060).

Regarding claim 10, the friction modifying particles comprise about 0.2% to about 50%, by weight, of friction modifying particles, based on the weight of the primary layer material (paragraph 0059).

Regarding claims 11 and 29, Lam does not appear to teach that the secondary layer comprises about 20% to about 30%, by weight, of symmetrically shaped silica particles, and about 65% to about 80% carbon particles, based on the total weight of the friction modifying particles. However, Lam does teach an embodiment wherein the secondary layer comprises about 3% to about 5%, by weight, CELITE friction modifying particles (paragraph 0068). Additionally, Lam teaches that the amount of friction modifying particles on the primary layer ranges from about 0.2 to about 20% by weight (paragraph 0059). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the percentages of symmetrically shaped silica particles and carbon particles based on the teachings of Lam, since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

Regarding claim 12, the friction modifying particle size ranges from about 0.05 to about 20 microns (paragraph 0058).

Regarding claim 13, the friction modifying particles comprise symmetrically shaped diatomaceous earth (paragraph 0060).

Art Unit: 1771

Regarding claims 14, 15 and 17, the friction material is impregnated with a phenolic resin or a modified phenolic resin or an epoxy phenolic resin, comprising about 40 to about 120% resin, by weight (paragraph 0040, 0043).

Regarding claim 16, the friction material is impregnated with a mixture of a phenolic resin and a silicone resin wherein the amount of silicone resin in the mixture ranges from approximately 5 to approximately 80%, by weight, based on the weight of the mixture, and optionally, wherein the phenolic resin is present in a solvent material and the silicon resin is present in a solvent material which is compatible with the solvent material of the phenolic resin (paragraphs 0040, 0041, 0046, 0048).

Regarding claim 28, Lam does not appear to specifically disclose that the geometrically symmetrically shaped friction modifying particles have a substantially flat disc shape. However, the shape limitation is deemed to be inherent to the friction modifying particles.

In the event it is shown that the Lam reference does not disclose the claimed invention with sufficient specificity, the invention is obvious because the Lam reference discloses the claimed constituents and discloses that they may be used in combination.

Terminal Disclaimer

9. The terminal disclaimer filed on November 2, 2006, disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of USPN 6,875,711 and any patent granted on Application No. 10/888245 and 10/871786 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Art Unit: 1771

Conclusion

USPN 6,875,711 to Chen is referenced to indicate that CELITE typically has a symmetrical shape.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Y. Choi whose telephone number is (571) 272-6730. The examiner can normally be reached on Monday - Friday, 08:00 - 15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Peter Y. Choi
January 17, 2007



ANDREW PIZIALI
PRIMARY EXAMINER